



OWNER'S MANUAL

A1000.4 DRAGONFLY
HIGH EFFICIENCY DIGITAL AMPLIFIER




www.altoproaudio.com
Version 1.2 OCT. 2007


English

IMPORTANT SAFETY INSTRUCTION



TO REDUCE THE RISK OF ELECTRIC SHOCK PLEASE DO NOT REMOVE THE COVER OR THE BACK PANEL OF THIS EQUIPMENT. THERE ARE NO PARTS NEEDED BY USER INSIDE THE EQUIPMENT. FOR SERVICE, PLEASE CONTACT QUALIFIED SERVICE CENTERS.

 This symbol, wherever used, alerts you to the presence of un-insulated and dangerous voltages within the product enclosure. These are voltages that may be sufficient to constitute the risk of electric shock or death.


 This symbol, wherever used, alerts you to important operating and maintenance instructions. Please read.

- ⊕ Protective Ground Terminal
- ~ AC mains (Alternating Current)
- ⚡ Hazardous Live Terminal

ON: Denotes the product is turned on.
OFF: Denotes the product is turned off.

CAUTION

Describes precautions that should be observed to prevent damage to the product.

1. Read this Manual carefully before operation.
2. Keep this Manual in a safe place.
3. Be aware of all warnings reported with this symbol. 
4. Keep this Equipment away from water and moisture.
5. Clean it only with dry cloth. Do not use solvent or other chemicals.
6. Do not damp or cover any cooling opening. Install the equipment only in accordance with the Manufacturer's instructions.
7. Power Cords are designed for your safety. Do not remove Ground connections! If the plug does not fit your AC outlet, seek advice from a qualified electrician. Protect the power cord and plug from any physical stress to avoid risk of electric shock. Do not place heavy objects on the power cord. This could cause electric shock or fire.
8. Unplug this equipment when unused for long periods of time or during a storm.
9. Refer all service to qualified service personnel only. Do not perform any servicing other than those instructions contained within the User's Manual.
10. To prevent fire and damage to the product, use only the recommended fuse type as indicated in this manual. Do not short-circuit the fuse holder. Before replacing the fuse, make sure that the product is OFF and disconnected from the AC outlet.

WARNING

To reduce the risk of electric shock and fire, do not expose this equipment to moisture or rain.



Dispose of this product should not be placed in municipal waste and should be separate collection.

11. Move this Equipment only with a cart, stand, tripod, or bracket, specified by the manufacturer, or sold with the Equipment. When a cart is used, use caution when moving the cart / equipment combination to avoid possible injury from tip-over.



12. Permanent hearing loss may be caused by exposure to \ extremely high noise levels. The US. Government's Occupational Safety and Health Administration (OSHA) has specified the permissible exposure to noise level.

These are shown in the following chart:

HOURS X DAY	SPL	EXAMPLE
8	90	Small gig
6	92	train
4	95	Subway train
3	97	High level desktop monitors
2	100	Classic music concert
1,5	102	
1	105	
0,5	110	
0,25 or less	115	Rock concert

According to OSHA, an exposure to high SPL in excess of these limits may result in the loss of heat. To avoid the potential damage of heat, it is recommended that Personnel exposed to equipment capable of generating high SPL use hearing protection while such equipment is under operation.

The apparatus shall be connected to a mains socket outlet with a protective earthing connection.

The mains plug or an appliance coupler is used as the disconnect device, the disconnect device shall remain readily operable.

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1. INTRODUCTION

Thank you for your purchasing of the ▲LTO A1000.4 Dragonfly digital stereo amplifier. It is just one of the many ▲LTO products that a talented, multinational Team of Audio Engineers and Musicians have developed with their great passion for music. Your A1000.4 is based on an advanced digital amplifier circuit and Switch Mode Power Supply.

It is capable of 250 watt of power and it is possibly the smallest and lightest amplifier in the world with such power. Yet, it is only 1 rack space and 1.5U in height for a total of 6.8 Kg!

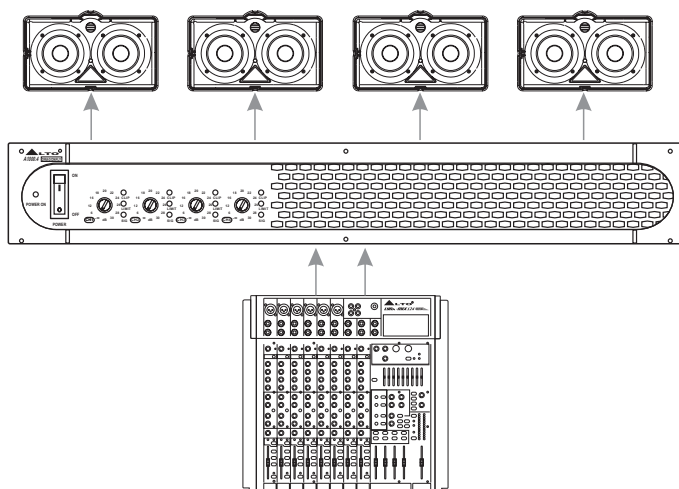
Due to the amplifier efficiency of over 90% there is no need for a cooling fan and therefore your A1000.4 is perfectly suitable for Studio Application as well as for amplification of compression drivers or full range speakers where a very high SPL is not demanded.

Enjoy your A1000.4 and make sure to read this Manual carefully before operation!

2. FEATURES

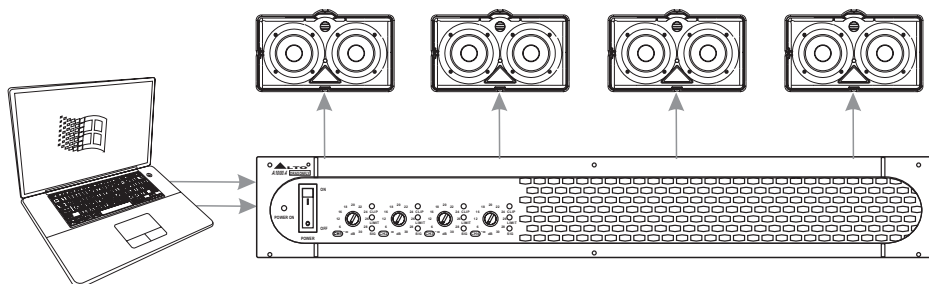
- ▲ Mountable in a 19" rack unit (1.5U) and 1 rack space,
Digital stereo amplifier
- ▲ Hi-fi quality for Studio applications
- ▲ Solid and durable, rack-mountable configuration
- ▲ Switchable Clip-Limiter.
- ▲ 4 × 250 Watts continuous EIAJ on 4 Ohm
- ▲ 4 × 450 Watts dynamic power on 4 Ohm
- ▲ 4 COMBO input sockets compatible with balanced XLR and Neutrik
Speak-on connectors for outputs.
- ▲ Front panel LED indicators for Clipping, Limiter, Power ON and Signal
- ▲ Individual Channel level control
- ▲ Manufactured under QS9000, VDA6.1 certified management system

RECORDING STUDIO SET UP



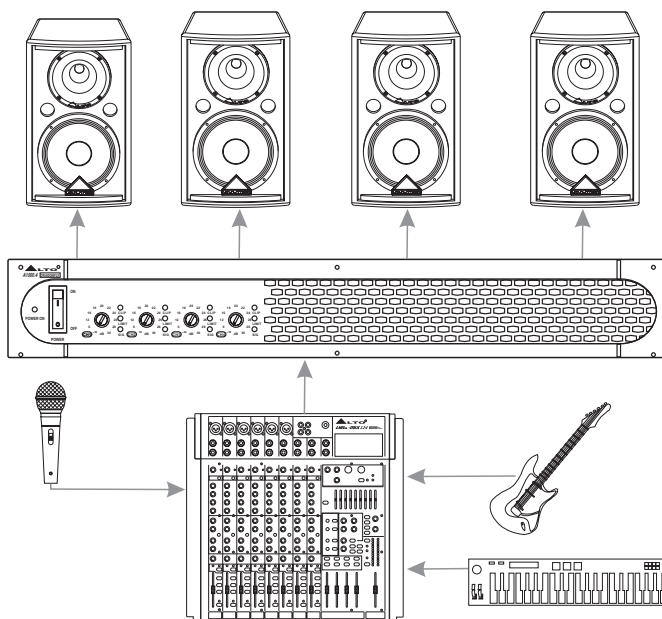
Also in this case, A1000.4 is connected to the CTRL ROOM output of the mixer and drives four passive studio monitors such as the **▲LTO MICRO4**. There is plenty of power even for bigger monitors still maintaining a very good headroom.

MULTIMEDIA SET UP



Today the advent of high-quality computer generated music creates the need for hi-fi quality and high SPL audio reproduction. In this example, the A1000.4 is connected to the output of your computer sound card and drives two pairs of advanced multimedia speakers such as the **▲LTO MICRO4**.

SMALL GIG SET UP



In this case, a passive mixer with different sound sources connected such as microphone, keyboard and electric guitar send the main mix signal to the A1000.4. You can connect two pairs of passive PA cabinets such as the **▲LTO ELVIS 10** or **ELVIS 12** for a gig in a small pub/bar or for a small Band rehearsal session.



3. CONTROL ELEMENTS

Front Panel:

1 Power On LED

This green LED will light up when you switch the A1000.4 ON.

2 Power Switch

To switch the A1000.4 ON and OFF.

3 Level Control for Channels 1, 2, 3 & 4

Adjust the output signal level of the respective channel.

4 Clip LED

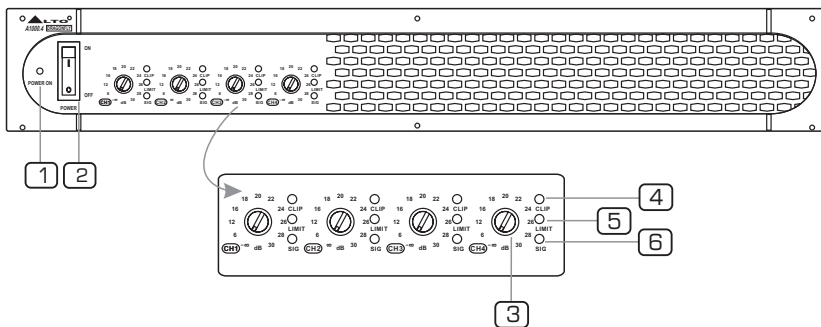
It will flash when you are reaching the maximum power output of the amplifier.
It should flash only occasionally for optimum operation.

5 Limit LED

This LED will flash when the internal limiter is operating.
The limiter will prevent distortion and will protect the life of high frequency transducers.

6 Signal LED

When a signal is applied to the input of your A1000.4, this LED will light up.





3. CONTROL ELEMENTS

Rear Panel:

7 Input sockets

These sockets accept the balanced signal from XLR and 1/4" connectors as well. These inputs are compatible with low-impedance, unbalanced/balanced, line-level outputs emanating from such as mixers, synthesizers, drum machines, direct boxes, crossovers, etc. Electric guitars, microphones, and other low level/high-impedance output devices require a pre-amp or a D/I box. The input circuits of your A1000.4 are electronically balanced. You can connect either symmetrical ("balanced") or unbalanced sources.

8 Output Sockets

Use these Neutrik Speak-on connectors to connect your speakers.

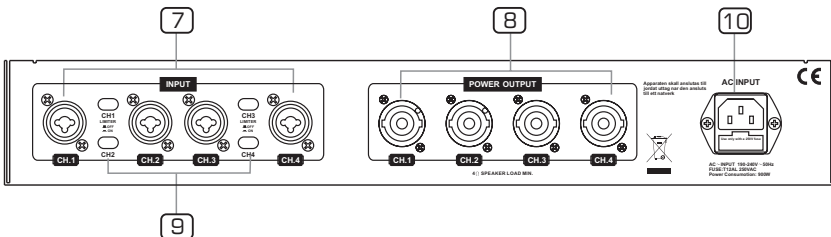
9 LIMITER Switch

The Limiter circuit will prevent the waveforms to be flattered thus preserving a proper dynamic range and secure signal reproduction that is distortion-free. The Limiter status can be monitored from the limit led on the front panel of your A1000.4.

10 AC Input

Standard IEC receptacle. Connect your A1000.4 an AC socket with the supplied power cord. Before powering up your A1000.4 for the first time, make certain the stated power requirement of the unit matches the voltage supplied by the AC socket.

If the fuse blows, replaced with a fuse of the correct type only.





A DEEPER LOOK: BALANCED OR UNBALANCED?

When cables are very long (e.g., over 6 meters/20 feet), the cable itself can act as an "antenna" and pick up radio frequency noise, AC hum, or other types of noises. To avoid these problems, many recording studios and live sound installers use balanced lines. The average application may not require balanced lines, but committing balanced connectors between the mixer and your A1000.4 will cause less ground loops and hum in the system. Balanced lines carry two signals, each one out of phase with respect to the other. To be converted back into a single, unbalanced line, both balanced lines feed a differential amplifier input that responds to the difference in levels between signals. In this way, the out-of-phase signals are recombined into an unbalanced signal, but interference induced into the cable will not be out of phase. Since the difference between these signals is zero, the differential amplifier will reject the interference completely.

4. OPERATION

1. Connect two pairs of PA cabinets or studio monitors to the output of your A1000.4. make sure that your A1000.4 is switched off and that the volume controls are turned down all the way.
2. Connect your A1000.4 to a mixer, a preamplifier or another source making sure that the gain and volume controls on the mixer are turned down.
3. Connect some source such as microphones, keyboards or CD player into your Mixer or preamplifier and start to make some noise.
4. Adjust the output level of your mixer or preamplifier at a proper level. A very low output level will generate unwanted noise.

At this point, gradually turn up the volumes in your A1000.4 making sure that the limit LEDs only flash occasionally.



OPERATION ADVICES:

4.1 TEMPERATURE CONSIDERATION IN RACK MOUNTING:

You can mount your A1000.4 in only 1.5U with the special optional brackets. Although your A1000.4 generates almost no heat at all, you must secure proper ventilation inside the rack to avoid overheating.

A sustained high-temperature operation will adversely affect the sound quality, and the amplifier may shut itself off for as long as the excessive temperature conditions exist.



4.2 IMPEDANCE

Your A1000.4 will easily drive 4 Ohm loads in Stereo mode. However, the impedance of any loudspeaker changes with frequency, and its rated impedance is not always its minimum impedance.

If you connect more than one loudspeaker to the A1000.4, please check that the actual load impedance does not drop below the A1000.4's rated output load that is 4 Ohm. Your A1000.4 will not be damaged by excessively low output load impedances, but will not be able to provide full output power and its protection circuit will automatically cut off the output signal until the low load condition is removed.



4.3 HOW TO CHOOSE THE CORRECT SPEAKER

Today it has become very popular to monitor and mix music through near-field monitors "reference" speakers. With near field monitoring, small speakers are positioned a few feet from the engineer's ears.

As a consequence, the acoustic is not so critical. Near-field monitors offer more advantages when compared to large studio monitor, such as smaller size and lower cost.

Because of its optimal power rating, HI-FI performance, and a no-fan design, your A1000.4 is ideal in driving reference near-field monitor speakers in smaller studios.

Your A1000.4 is also at home driving high frequency compression drivers or full range PA cabinets or Stage Monitors when enormous SPL is not required.



4.4 POWER CONSIDERATION

Digital amplifiers and switch mode power supply (which are parts of your A1000.4) are designed to reproduce musical signals with high dynamics, high SPL and low distortion. For this reason, all major Manufacturers of these kinds of amplifiers do not specify their amps in terms of RMS but most measurements are made with EIA (or EIAJ) specifications. An EIAJ signal (you can download the signal string from the site of Electronic Industry Association) simulates a musical signal and it is applied to the input of ▲LTO amplifier continuously, that is for a long period of time. Under EIA specification, your A1000.4 will deliver 250 watt x channel continuously with 240 Volt as AC power and with one channel at a time driven. But switch mode power supply like the one used in your A1000.4 are capable of enormous dynamics and therefore we also measure your A1000.4 as "dynamic power". This is the amplifier capability to deliver a very high "dynamic power" for short periods of time securing unprecedented SPL with transient sounds. In this case the total dynamic power of your A1000.4 is 450 watt x channel on 4 Ohm.

5. TECHNICAL SPECIFICATIONS

A1000.4 DRAGONFLY	20 Hz 20 kHz@ 0.1%THD, Stereo Mode
8 Ohms per channel (EIAJ)	150 Watt
4 Ohms per channel (EIAJ)	250 Watt
4 Ohms per channel (Dynamic Power)	450 Watt (PEAK POWER)
Controls	FRONT: POWER SWITCH, CH1 & CH2 & CH3 & CH4 LEVEL knobs
Input Sensitivity @ 4 Ohms	+3dBu REAR: CH1 & CH2 & CH3 & CH4 LIMITER
Indicators (per channel)	Power-On: Green LED Clip: Red LED Limit: Yellow LED Signal: Green LED
Connectors of each channel	Input: COMBO connector Output: Neutrik Speak-on connector
Power Supply	190-240 VAC~50 Hz / 95-120 VAC~60 Hz
Frequency Response	20 Hz-20 kHz+3 dB
SNR (Signal to Noise Ratio)	76 dB
THD	<0.35%
Protection	Thermal and Short Circuit Protection
Dimension	314 x 440 x 66.6 mm
Net Weight	6.8 Kg

6. WARRANTY

1. WARRANTY REGISTRATION CARD

To obtain Warranty Service, the buyer should first fill out and return the enclosed Warranty Registration Card within 10 days of the Purchase Date.

All the information presented in this Warranty Registration Card gives the manufacturer a better understanding of the sales status, so as to provide a more effective and efficient after-sales warranty service. Please fill out all the information carefully and genuinely, miswriting or absence of this card will void your warranty service.

2. RETURN NOTICE

- 2.1 In case of return for any warranty service, please make sure that the product is well packed in its original shipping carton, and it can protect your unit from any other extra damage.
- 2.2 Please provide a copy of your sales receipt or other proof of purchase with the returned machine, and give detail information about your return address and contact telephone number.
- 2.3 A brief description of the defect will be appreciated.
- 2.4 Please prepay all the costs involved in the return shipping, handling and insurance.

3. TERMS AND CONDITIONS

- 3.1 ▲LTO warrants that this product will be free from any defects in materials and/or workmanship for a period of 1 year from the purchase date if you have completed the Warranty Registration Card in time.
- 3.2 The warranty service is only available to the original consumer, who purchased this product directly from the retail dealer, and it can not be transferred.
- 3.3 During the warranty service, ▲LTO may repair or replace this product at its own option at no charge to you for parts or for labor in accordance with the right side of this limited warranty.
- 3.4 This warranty does not apply to the damages to this product that occurred as the following conditions:
 - Instead of operating in accordance with the user's manual thoroughly, any abuse or misuse of this product.
 - Normal tear and wear.
 - The product has been altered or modified in any way.
 - Damage which may have been caused either directly or indirectly by another product / force / etc.
 - Abnormal service or repairing by anyone other than the qualified personnel or technician.

And in such cases, all the expenses will be charged to the buyer.

- 3.5 In no event shall ▲LTO be liable for any incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion or limitation may not apply to you.
- 3.6 This warranty gives you the specific rights, and these rights are compatible with the state laws, you may also have other statutory rights that may vary from state to state.

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